

Lab 9 - Trunk Groups

CCNA Voice Lab 9

Trunk Groups

Lab Objective:

The objective of this lab exercise is for you to learn and understand how to implement trunk group configuration in Cisco IOS voice gateways

Topic Description:

A trunk group is a logical grouping of one or more interfaces. In Cisco IOS voice gateways, BRI, PRI, CAS, FXO, FXS and E&M ports can be combined into trunk groups

Lab Difficulty:

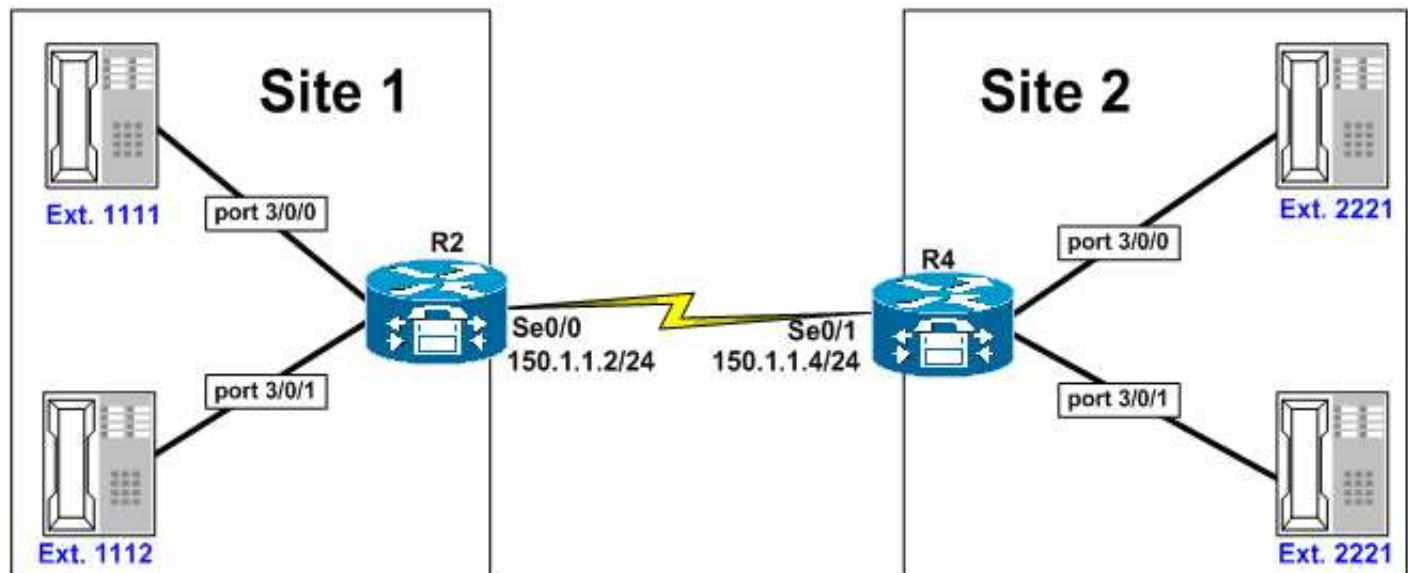
This lab has a difficulty rating of 7/10

Readiness Assessment:

When ready for your exam, you should be able to complete this lab in no more than 15 minutes

Lab Topology:

Please use the following topology to complete this lab exercise:



Lab 9 Configuration Tasks

Task 1:

Configure the hostnames and IP addresses on R2 and R4 as illustrated in the diagram. Configure R4 to provide clocking to R2. Configure the clock rate on R4 as 800Kbps

Task 2:

Configure POTS dial peers for the connected phones on R2 as illustrated in the diagram. Use any dial peer numbers you want

Task 3:

Configure VoIP dial peers on R2 and R4 for the extensions at either location. Use any dial peer numbers you want

Task 4:

Configure a trunk group on R4 for ports 3/0/0 and 3/0/1. Ensure that port 3/0/1 is always the first port to be used. If that is unavailable, port 3/0/0 should be used even if other ports are added to the trunk group at a later stage. The trunk group hunt scheme should be sequential and it should only accept a maximum of 2 voice calls

Task 5:

Configure a POTS dial peer on R4 for the extensions of the connected phones. This dial peer should forward calls to the physical phones using the configured trunk group

Task 6:

Verify your configuration using the appropriate Cisco IOS **show** commands while placing a call from one of the phones connected to R2 to the trunk group on R4

Lab 9 Configuration and Verification

Task 1:

```
R2(config)#hostname R2
R2(config)#interface Serial0/0
R2(config-if)#description .Connected To R4 Serial 0/1.
R2(config-if)#ip address 150.1.1.2 255.255.255.0
```

```
R4(config)#hostname R4
R4(config)#interface Serial0/1
R4(config-if)#description .Connected To R2 Serial 0/0
R4(config-if)#ip address 150.1.1.4 255.255.255.0
R4(config-if)#clock rate 800000
```

Verify connectivity by performing a simple ping between the two routers

R2#ping 150.1.1.4

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 150.1.1.4, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms

R4#ping 150.1.1.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 150.1.1.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/8 ms

Task 2:

```
R2(config)#dial-peer voice 1 pots
R2(config-dial-peer)#destination-pattern 1111
R2(config-dial-peer)#port 3/0/0
R2(config-dial-peer)#exit
R2(config)#dial-peer voice 2 pots
R2(config-dial-peer)#destination-pattern 1112
R2(config-dial-peer)#port 3/0/1
R2(config-dial-peer)#exit
```

Task 3:

```
R2(config)#dial-peer voice 3 voip
R2(config-dial-peer)#destination-pattern 2221
R2(config-dial-peer)#session target ipv4:150.1.1.4
```

```
R2(config-dial-peer)#exit
```

```
R4(config)#dial-peer voice 1 voip
```

```
R4(config-dial-peer)#destination-pattern 111.
```

```
R4(config-dial-peer)#session target ipv4:150.1.1.2
```

```
R4(config-dial-peer)#exit
```

Task 4:

```
R4(config)#trunk group Lab-8-Trunk-Group
```

```
R4(config-trunk-group)#hunt-scheme sequential
```

```
R4(config-trunk-group)#max-calls voice 2
```

```
R4(config-trunk-group)#exit
```

```
R4(config)#voice-port 3/0/0
```

```
R4(config-voiceport)#trunk-group Lab-8-Trunk-Group
```

```
R4(config-voiceport)#exit
```

```
R4(config)#voice-port 3/0/1
```

```
R4(config-voiceport)#trunk-group Lab-8-Trunk-Group 1
```

```
R4(config-voiceport)#exit
```

Task 5:

```
R4(config)#dial-peer voice 2 pots
```

```
R4(config-dial-peer)#destination-pattern 2221
```

```
R4(config-dial-peer)#trunkgroup Lab-8-Trunk-Group
```

```
R4(config-dial-peer)#exit
```

Task 6:

First, a call is made from extension 1111 to the trunk group. Based on the configuration of the trunk group, this will ring the phone connected to port 3/0/1 first. The call is placed and R1 shows the following information:

```
R2#show call active voice compact
```

```
<callID> A/O FAX T<sec> Codec type Peer Address IP R<ip>:<udp>
```

```
Total call-legs: 2
```

```
9 ANS T94 g729r8 TELE P1111
```

```
10 ORG T94 g729r8 VOIP P2221 150.1.1.4:16888
```

```
R2#
```

```
R2#show voice call summary
```

```
PORT CODEC VAD VTSP STATE VPM STATE
```

```
=====
```

```
3/0/0 g729r8 y S_CONNECT FXSLS_CONNECT
```

```
3/0/1 - - - FXSLS_ONHOOK
```

```
3/1/0 - - - FXOLS_ONHOOK
```

```
3/1/1 - - - FXOLS_ONHOOK
```

On the receiving end, R2 shows the following information:

```
R4#show call active voice compact
```

```
<callID> A/O FAX T<sec> Codec type Peer Address IP R<ip>:<udp>
```

```
Total call-legs: 2
```

```
7 ANS T51 g729r8 VOIP P1111 150.1.1.2:18458
```

```
8 ORG T51 g729r8 TELE P2221
```

```
R4#
```

```
R4#show voice port summary
```

```
IN OUT  
PORT CH SIG-TYPE ADMIN OPER STATUS STATUS EC
```

```
=====
```

```
3/0/0 -- fxs-ls up dorm on-hook idle y
```

```
3/0/1 -- fxs-ls up up off-hook idle y
```

```
3/1/0 -- e&m-wnk up dorm idle idle y
```

```
3/1/1 -- e&m-wnk up dorm idle idle y
```

```
PWR FAILOVER PORT PSTN FAILOVER PORT
```

```
=====
```

```
R4#
```

```

.....
R4#show voice call summary
PORT          CODEC    VAD VTSP STATE          VPM STATE
=====
3/0/0         -      - -          FXSLS_ONHOOK
3/0/1         g729r8  y S_CONNECT      FXSLS_CONNECT
3/1/0         -      - -          EM_ONHOOK
3/1/1         -      - -          EM_ONHOOK
R4#

```

R4#show trunk group

Trunk group: Lab-8-Trunk-Group

Description:

trunk group label: Lab-8-Trunk-Group

Translation profile (Incoming):

Translation profile (Outgoing):

Hunt Scheme is sequential

Max Calls (Incoming): NOT-SET (Any) 2 (Voice) NOT-SET (Data)

Max Calls (Outgoing): NOT-SET (Any) 2 (Voice) NOT-SET (Data)

Max Calls (MixTotal): NOT-SET (Any) 2 (Voice) NOT-SET (Data)

Retries: 0

Trunk 3/0/1 Preference 1

Member Timeslots : 1

Total channels available : 1

Data = 0, **Voice = 1**, Modem = 0, Pending = 0, **Free = 0**

Trunk 3/0/0 Preference DEFAULT

Member Timeslots : 1

Total channels available : 1

Data = 0, Voice = 0, Modem = 0, Pending = 0, **Free = 1**

Total calls for trunk group: Data = 0, Voice = 1, Modem = 0

Pend = 0, Free = 1

advertise_flag 0x00000040, capacity timer 25 sec tripl_config_mask 0x00000000

AC_curr 1, FD_curr 0, SD_curr 0

succ_curr 0 tot_curr 0

succ_report 0 tot_report 0

changed 0 replacement position 0

Final Relevant Configuration R2:

R2#show running-config

Building configuration...

Current configuration : 1494 bytes

!

version 12.4

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname R2

!

!

!

!

interface Serial0/0

description .Connected To R4 Serial 0/1.

ip address 150.1.1.2 255.255.255.0

no fair-queue

!

!

!

!

```

voice-port 3/0/0
!
voice-port 3/0/1
!
voice-port 3/1/0
!
voice-port 3/1/1
!
!
!
!
dial-peer voice 1 pots
 destination-pattern 1111
 port 3/0/0
!
dial-peer voice 2 pots
 destination-pattern 1112
 port 3/0/1
!
dial-peer voice 3 voip
 destination-pattern 2221
 session target ipv4:150.1.1.4

```

Final Relevant Configuration R4:

R4#**show running-config**

Building configuration...

Current configuration : 1609 bytes

```

!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R4
!
!
!
!
trunk group Lab-8-Trunk-Group
 max-calls voice 2
 hunt-scheme sequential
!
!
!
!
interface Serial0/1
 description .Connected To R2 Serial 0/0
 ip address 150.1.1.4 255.255.255.0
 clock rate 800000
!
!
!
!
voice-port 3/0/0
 trunk-group Lab-8-Trunk-Group
!
voice-port 3/0/1
 trunk-group Lab-8-Trunk-Group 1
!
voice-port 3/1/0
!
voice-port 3/1/1
!
!

```

```
:  
!  
!  
dial-peer voice 1 voip  
destination-pattern 111.  
session target ipv4:150.1.1.2  
!  
dial-peer voice 2 pots  
trunkgroup Lab-8-Trunk-Group  
destination-pattern 2221
```



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